

نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره ... کلاس: ...

۲۰ عالی نوشتار ۱

$$f(x) - x + 1 \geq 0 \quad [x] > 4 \Rightarrow x \geq 5 \Rightarrow 2x - 1 - x + 1 = x \rightarrow x \geq 5 \quad ①$$

$$[x] < 4 \Rightarrow x < 5 \Rightarrow 4x + 3 - x + 1 = 3x + 4 \quad 3x + 4 \geq 0 \Rightarrow x \geq -\frac{4}{3} \quad ②$$

$$\textcircled{1} \textcircled{2} \rightarrow D_f = \left[-\frac{4}{3}, +\infty\right) \quad \checkmark$$

$$\Rightarrow \frac{3(12x^3 + 12x^2 + 4x + 1)}{(2x+1)^4} = \frac{3(2x+1)^3}{(2x+1)^4} = \frac{3}{2x+1} \quad \checkmark$$

$$2x+1 \neq 0 \Rightarrow x = -\frac{1}{2} \quad D = \mathbb{R} - \left\{-\frac{1}{2}\right\} \quad \checkmark$$

$$x=0 \Rightarrow c = \frac{-2}{1} = -2 \quad \checkmark$$

$$x=1 \Rightarrow 3 = \frac{a+2}{b+1} \Rightarrow a = 3b+1$$

$$x=-1 \Rightarrow 1 = \frac{2-a}{b-1} \Rightarrow b-1 = (3b+1) \times (-1) + 2 \Rightarrow 4b = 2 \Rightarrow b = \frac{1}{2}, a = \frac{5}{2}$$

$$b+c = \frac{1}{2} + 2 = \frac{5}{2} \quad \checkmark$$

$$g(x) = \frac{(x-1)(x+1)}{(x-1)(x-2)} \xrightarrow{\text{یک ریشه مشترک}} c=1 \Rightarrow x^2 - 2x + 1 \Rightarrow a=-2, b=1$$

$$a+b+c = -2+1+1 = 0 \quad \checkmark$$

$$f(x+1) + f(1-x) = (x-2)^2(x) + (-2-x)^2(-x) = (x^2 - 4x + 4)x + (x^2 + 4x + 4)(-x)$$

$$\Rightarrow x(x^2 - 4x + 4 - x^2 - 4x - 4) = x(-8x) = -8x^2 \quad \checkmark$$

$r = 1 - 2x \Rightarrow x = -1 \Rightarrow f(r) = -1 + r = 1$ $-1 = 1 - 2x \Rightarrow x = 1 \Rightarrow f(-1) = 1\sqrt{1} = 1$ $f(r) + f(-1) = 1 + 1 = \underline{2}$	2 6
$x + \sqrt{x} = 4 \Rightarrow (\sqrt{x} + r)(\sqrt{x} - r) = 0 \Rightarrow \sqrt{x} = r, x = r^2$ $r^4 + r(r) = \underline{241}$	2 7
$f(x) = x^r + x, f(-x) = -x^r - x = -f(x)$ $f(1-x) = f(-(x-1)) = -f(x-1)$ $f(x-1) + (-f(x-1)) = \underline{0}$	2 8
$Df \Rightarrow rx - ra \geq 0 \Rightarrow x \geq \frac{ra}{r}$ $Dg \Rightarrow b - rx \geq 0 \Rightarrow x \leq \frac{b}{r}$ $Df \cap Dg = \{1\} \Rightarrow \frac{ra}{r} = 1 = \frac{b}{r} \Rightarrow a = \frac{r}{r} b = 1$ $(rf - g)(1) = K \Rightarrow r(K-1) - rK = K \Rightarrow rK = -r \Rightarrow K = -1$ $ra - \frac{b}{r} - K = r - r + 1 = \underline{1}$	2 9
$Dg \Rightarrow rx + r \geq 0 \Rightarrow x \geq -1 \text{ ①}$ $Df \Rightarrow m - x \geq 0 \Rightarrow x \leq m \text{ ②}$ $\text{①} \cap \text{②} \rightarrow [-1, m] = [-1, 1] \Rightarrow m = 1$ $f(r) - r\sqrt{r} = 4\sqrt{r} \Rightarrow \sqrt{r} + n = 4\sqrt{r} \Rightarrow n = 3\sqrt{r} - r$ $m + n = 1 + 3\sqrt{r} - r = \underline{5 + 12\sqrt{r}}$	2 10